

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: § Attorney Docket No. AUS920030887US1
RAMAKRISHNAN RAJAMONY §
§
Serial No.: **10/734,771** § Examiner: **NOORISTANY, SULAIMAN**
§
Filed: **12/12/2003** § Art Unit: **2109**
§
For: **ESTIMATING BANDWIDTH OF** § Confirmation No.: **1762**
CLIENT-ISP LINK §

APPEAL BRIEF UNDER 37 C.F.R. 41.37

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Sir:

This Appeal Brief is submitted in support of the Appeal of the Examiner's rejection of Claims 10-16 in the above-identified application as set forth in the Office Action dated June 25, 2008.

REAL PARTY IN INTEREST

The real party in interest in the present Appeal is International Business Machines Corporation, the Assignee of the present application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellants, the Appellants' legal representative, or assignee, which directly affect or would be directly affected by or have a bearing on the Board's decision in the pending Appeal.

STATUS OF CLAIMS

Claims 1-20 were originally presented. No new claims have been entered, and in Amendment B, filed March 10, 2008, Claims 1-9 and 17-20 were cancelled. Thus, Claims 10-16 are currently pending. The rejection of each of Claims 10-16 is appealed.

STATUS OF AMENDMENTS

Appellants' Amendment B, filed March 10, 2008, was entered by the Examiner. No additional amendments to the claims have been proposed or entered subsequent to the rejection that led to this appeal.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent Claim 10 recites a method for providing a service for estimating the obtainable bandwidth of the network connection of a client (see, e.g., Figure 1, client 102; page 4, lines 1-5). According to the method, a service provider (see, e.g., Figure 1, service provider 160; page 11, line 31 through page 12, line 2) receives, from a server (see, e.g., Figure 1, server 150; page 5, lines 1-4), a request for bandwidth estimation of a bandwidth of a connection between the server and the client (see, e.g., Figure 4, block 402; page 12, lines 3-4). The service provider responds to the request for bandwidth estimation by providing the client with a snippet (see, e.g., Figure 3, snippet 300) that is an executable configured to request the server to serve first and second objects, in a chronologically sequential manner, to the client via the connection (see, e.g., Figure 4, block 404; page 12, lines 3-4). The service provider receives, from the snippet at the client, information indicative of time elapsed between delivery of the first and

second objects and estimates the bandwidth of the connection based in part on the elapsed time (see, e.g., Figure 4, blocks 406-410; page 12, lines 4-10).

In addition to the features of Claims 10 and 12, Claim 13 recites that the server responds to the requests for the first and second objects by transmitting the first and second objects to the client from a content distribution network server (see, e.g., Figure 1, CDN server 120; page 5, lines 29-30) that is architecturally proximal to an ISP server to which the client is connected (see, e.g., Figure 1; page 5, line 30 through page 6, line 12).

In addition to the features of Claims 10, 12 and 13, Claim 14 recites that the second object has a size less than or equal to a minimum transmission unit associated with the network, wherein the second object is prevented from fragmentation (see, e.g., page 9, lines 1-17).

In addition to the features of Claims 10 and 12-14, Claim 15 recites that the snippet is invoked multiple times to obtain multiple estimates of the bandwidth and the highest bandwidth estimate is selected (see, e.g., page 9, lines 21-26).

In addition to the features of Claim 10, Claim 16 recites that the snippet includes:

instructions for creating first and second image objects (see, e.g., Figure 3, block 304; page 10, lines 16-26);

instructions for generating a unique identifier (uniqueID) (see, e.g., Figure 3, block 302; page 10, lines 8-15); and

instructions for associating the first and second image objects with the first and second objects on the server using URLs containing the uniqueID (see, e.g., Figure 3, block 306; page 7, lines 25-30, page 11, lines 3-6).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on appeal are:

- I. the rejection of Claims 10-13 and 16 under 35 U.S.C. § 103(a) as unpatentable over the combination of U.S. Patent Publication No. 2004/0088349 to *Beck et al. (Beck)*, U.S. Patent Publication No. 2002/0169880 to *Loguinov et al.*, and U.S. Patent Publication No. 2001/0010059 to *Burman et al. (Burman)*;

II. the rejection of Claims 14-15 under 35 U.S.C. § 103(a) as unpatentable over the combination of *Beck*, *Loguinov*, *Burman* and U.S. Patent No. 6,731,600 to *Patel et al.* (*Patel*).

ARGUMENT

I. Rejection under 35 U.S.C. § 103 in view of combination of *Beck*, *Loguinov* and *Burman*

On page 3 of the Office Action dated June 25, 2008, Claims 10-13 and 16 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of *Beck*, *Loguinov*, *Burman*. That rejection is not well founded and should be reversed.

A. Independent Claim 10

1. Combination of *Beck* with *Loguinov* and *Burman* is improper

As an initial matter, the combination of *Beck*, *Loguinov* and *Burman* does not render Claim 10 and its dependent Claims 11-16 unpatentable under 35 U.S.C. § 103 because that combination of references is manifestly improper.

At page 4 of the Office Action of June 25, 2008, the Examiner attempts to support the combination of *Beck* with *Loguinov* as follows:

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beck's invention by utilizing a temporary user ID tokens [sic] which could be used to enable an ISP to share with a Web server information about the end-user's Internet access device as well as information about the bandwidth of the end-user's access link to the Internet. ... After the ISP responds to the Web server with that information, it uses that information to formulate its response to the end-user's original request in a format appropriate for that end-user's client type, as taught by Loguinov. [Emphasis supplied]

The Examiner's reasoning is flawed in a number of respects. First, Appellants note that the Examiner has provided no objective technical rationale to combine the cited references. Instead, the Examiner makes the bold conclusive assertion, "It would have been obvious"

Second, the combination suggested by the Examiner is directly contrary to the specific teaching of *Beck*. For example, paragraph [0010] of *Beck*, which is relied upon by the Examiner in formulating the §103 rejection, discloses:

The client 101, which is running a conventional browser program 104 appropriate for its client type, is desirous of engaging in a transaction with third-party application 106 running on a Web server 107 at a Web site 120. The end-user however, wishes to maintain anonymity with respect to that application 106, not revealing his identity or other user-specific information that the application 106 may find useful or necessary in formulating a response to a request. In order to maintain end-user anonymity, an intermediary 108, at the edge of the network within the ISP network 102, modifies the HTTP requests issued by either the browser 104 or the responses to token-less request from application 106, as will be described, to insert into the request or response an ISP-generated temporary user ID token that is associated only with the specific end-user generating the request and is identifiable with that end-user only by the ISP. As such, the Web server 107 receiving the request cannot determine the end-user's identity from the temporary user ID token. [Emphasis supplied]

Thus, *Beck* is directed to a networking arrangement in which user-specific information that a web server's application would ordinarily gather from a client in the course of a web transaction is withheld from the web server's application by an intermediary. The teaching of *Beck* stands in direct opposition to the Examiner's rationale for the combination of references, in which the Examiner speculates that the combination of references "could be used to enable an ISP to share with a Web server information about the end-user's Internet access device" (emphasis supplied). Because the whole intent of *Beck* is to withhold user-related information from a web server, the Examiner's combination of *Beck* and *Loguinov* to facilitate the sharing of user-related information is not objectively obvious or even desirable in view of the reference teachings. Consequently, the rejection of Claim 10 and its dependent Claims 11-16 under 35 U.S.C. § 103 is not well founded and should be withdrawn.

2. Combination of Beck, Loguinov and Burman does not disclose “a service provider receiving, from a server, a request for bandwidth estimation” as recited in Claim 10

Appellant respectfully submits that the combination of *Beck*, *Loguinov* and *Burman* does not render independent Claim 10 unpatentable under 35 U.S.C. § 103 because that combination does not disclose or render obvious the following feature of Claim 10:

a service provider receiving, from a server, a request for bandwidth estimation of a bandwidth of a connection between the server and the client.

With respect to the above step of independent Claim 10, page 3 of the Office Action cites paragraph [0010] of *Beck* as disclosing “the Web server requests the ISP to perform an action, which consists of providing information about the end-user’s Internet access device and access link bandwidth.” The cited portion of *Beck* discloses in relevant part:

The client 101, which is running a conventional browser program 104 appropriate for its client type, is desirous of engaging in a transaction with third-party application 106 running on a Web server 107 at a Web site 120. The end-user however, wishes to maintain anonymity with respect to that application 106, not revealing his identity or other user-specific information that the application 106 may find useful or necessary in formulating a response to a request. In order to maintain end-user anonymity, an intermediary 108, at the edge of the network within the ISP network 102, modifies the HTTP requests issued by either the browser 104 or the responses to token-less request from application 106, as will be described, to insert into the request or response an ISP-generated temporary user ID token that is associated only with the specific end-user generating the request and is identifiable with that end-user only by the ISP. As such, the Web server 107 receiving the request cannot determine the end-user’s identity from the temporary user ID token.

Thus, *Beck* as combined with *Loguinov* and *Burman* discloses that a client may utilize an intermediary to provide a service, such as modifying its HTTP requests with a temporary user ID token to ensure user anonymity. The combination of references does not disclose a service provider receiving a request for bandwidth estimation from a server as claimed. Appellants therefore respectfully submit that the rejection of Claim 10 and its dependent claims under 35 U.S.C. § 103 in view of the combination of *Beck*, *Loguinov* and *Burman* should be reversed.

3. Combination of *Beck*, *Loguinov* and *Burman* does not disclose “the service provider responding to the request for bandwidth estimation by providing the client with a snippet” as recited in Claim 10

The rejection of Claim 10 under 35 U.S.C. § 103 in view of the combination of *Beck*, *Loguinov* and *Burman* should also be reversed because that combination of references does not disclose or render obvious the following step of Claim 10:

the service provider responding to the request for bandwidth estimation by providing the client with a snippet that is an executable configured to request the server to serve first and second objects, in a chronologically sequential manner, to the client via the connection.

At page 3 of the Office Action, the Examiner admits that *Beck* fails to teach the above “responding” step of Claim 10 and cites Figures 1 and 5 of *Loguinov* as teaching the “responding” step. As described in paragraphs [0005] and [0006] of *Loguinov*, Figure 1 of *Loguinov* discloses “the conventional estimation mechanism known as Receiver-Based Packet Pair (RBPP)” in which “the sender transmits to the receiver two back-to-back packets.” Upon receipt, “the receiver computes the value of the bottleneck bandwidth ... [and] generates a special packet ... with the computed estimate value ... and transmits it back to the sender.” Thus, Figure 1 of *Loguinov*, taken in combination with *Beck* and *Burman*, does not disclose a service provider “responding to the request for bandwidth estimation by providing the client with a snippet that is an executable configured to request the server to serve first and second objects ...” as claimed. Clearly, a “snippet,” which is an executable with specified functionality, is not disclosed by the mere data packet.

Figure 5 of *Loguinov* is described in paragraph [0024] of *Loguinov* as follows:

[0024] Referring to FIG. 4(b), according to an exemplary embodiment of the present invention, the server system 12 transmits data packets containing actual real-time data in bursts in step 200. Here, the packets that the server system 12 has to deliver to the client system 14 are transmitted at a maximum transmission speed of the adjacent link to guarantee the condition that the packets traveling along the end-to-end Internet path are queued and delayed at the bottleneck link. That is, the packets of each burst have to leave the server system 12 at a rate that is definitely higher than the bottleneck link's speed, so that the packets in each burst can be expanded before they arrive to the client system 14, as shown in FIG.

5. It is be noted that although the server system 12 uses packets of a different size in FIG. 5, the server system 12 may send packets of equal size in the embodiment of the present invention.

As is apparent from the foregoing description, Figure 5 of *Loguinov* does not disclose a service provider “responding to the request for bandwidth estimation by providing the client with a snippet …” as claimed. Instead, Figure 5 discloses “a particular mechanism of estimating the bandwidth of the packets of the burst” (*Loguinov*, paragraph [0017]). Because the combination of *Beck*, *Loguinov* and *Burman* does not disclose the claimed step of a “responding to the request for bandwidth estimation by providing the client with a snippet,” Appellants respectfully submit that the rejection of Claim 10 and its dependent claims under 35 U.S.C. § 103 should be reversed.

C. Dependent Claim 13

The rejection of dependent Claim 13 under 35 U.S.C. § 103 in view of *Beck*, *Loguinov* and *Burman* should also be reversed because the cited combination of references does not disclose or render obvious:

the server responds to the requests for the first and second objects by transmitting the first and second objects to the client from a content distribution network server that is architecturally proximal to an ISP server to which the client is connected.

In the rejection of Claim 13 set forth at page 6 of the Office Action, the Examiner generally cites Figure 1 of *Beck* as teaching the feature of Claim 13 without any discussion of which features of Figure 1 of *Beck* (e.g., intermediary 108, server 122, web server 107, and/or server 116) are relied upon in combination with *Loguinov* and *Burman* as disclosing the claimed “server” and “content distribution network server”. As such, the Examiner has failed to set forth a *prima facie* case of obviousness, and the Examiner’s conclusion of obviousness is speculative at best. Moreover, it appears that the Examiner’s combination of *Beck*, *Loguinov* and *Burman* further fails to disclose the invention recited in Claim 13 because *Beck*’s web server 107, which responds to the HTTP requests of client browser 104, is not illustrated as “architecturally proximal to an ISP server [e.g., *Beck*’s server 122] to which the client is connected.” (The architectural proximity of the CDN server contributes to the reliability of the bandwidth estimation, as described, for example, at page 5, line 22 *et seq.* of the specification.) Instead,

Figure 1 of *Beck* illustrates the Internet interposed between web server 107 and server 122, indicating that these two servers are not architecturally proximate. Accordingly, the rejection of Claim 13 and its dependent claims under 35 U.S.C. § 103 in view of the combination of *Beck*, *Loguinov* and *Burman* is not well founded and should be reversed.

D. Dependent Claim 16

The rejection of dependent Claim 16 under 35 U.S.C. § 103 in view of *Beck*, *Loguinov*, and *Burman* should also be reversed because the cited combination of references does not disclose or render obvious the following features of Claim 16:

wherein the snippet includes:

instructions for creating first and second image objects;
instructions for generating a unique identifier (uniqueID); and
instructions for associating the first and second image objects with the first and second objects on the server using URLs containing the uniqueID.

In the rejection set forth at page 6 of the Office Action, the Examiner cites *Beck's* disclosure of multimedia-enriched content in paragraph [0032] as disclosing “instructions for creating first and second image objects.” However, the mere disclosure of conventional multimedia content by *Beck*, when taken in combination with the other references of record, does not disclose or render obvious a server-supplied snippet that creates first and second image objects as claimed.

Page 6 of the Office Action further cites *Beck's* disclosure of user IDs as disclosing the object uniqueIDs recited in Claim 16 and cites the conventional URLs disclosed in Figures 3-4 of *Beck* as disclosing the claimed “instructions for associating the first and second image objects with the first and second objects on the server.” However, the user IDs and conventional URLs disclosed by *Beck*, when taken in combination with the other references of record, do not associate image objects created by a snippet with corresponding objects on a server, but instead merely respectively identify users and serve as a proxy for a network address of an object.

In apparent recognition of the weakness of the rejection, the Examiner further cites *Loguinov's* paragraph [0021] as disclosing burst identifiers that distinguish packets of different

bursts. Again, such burst identifiers, when taken in combination with the other references of record, do not associate image objects created by a snippet with corresponding objects on a server.

Because the combination of *Beck*, *Loguinov* and *Burman* does not disclose “instructions for creating first and second image objects” or “instructions for associating the first and second image objects with the first and second objects on the server” as claimed, Appellants respectfully submit that the rejection of Claim 16 under 35 U.S.C. § 103 should be reversed.

II. Rejections under 35 U.S.C. § 103 in view of Beck, Loguinov, Burman and Patel

At page 6 of the Office Action, Claims 14-15 are rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of *Beck*, *Loguinov*, and *Burman* in further view of U.S. Patent No. 6,731,600 to *Patel*. That rejection is also not well founded and should be reversed.

A. Arguments made with respect to Claim 10 apply to its dependent claims

Because the additional citation to *Patel* does not address any of the deficiencies in the rejection of underlying independent Claim 10 or Claim 13 in view of the combination of *Beck*, *Loguinov* and *Burman*, the arguments set forth above with reference to Claim 10 also demonstrate that the rejection of Claims 14-15 should be reversed. In addition, the arguments set forth above with reference to Claim 13 demonstrate that the rejections of its dependent Claims 14-15 should be reversed.

B. Dependent Claim 14

The rejection of dependent Claim 14 under 35 U.S.C. § 103 in view of *Beck*, *Loguinov*, *Burman* and *Patel* should also be reversed because the cited combination of references does not disclose or render obvious:

... the second object has a size less than or equal to a minimum transmission unit associated with the network, wherein the second object is prevented from fragmentation.

In the rejection set forth at page 6 of the Office Action, the Examiner cites col. 11, lines 47-49 of *Patel* as disclosing the features of Claim 14. In its larger context including lines 42-52, the cited passage teaches:

In one embodiment of the invention, the client computer 112 attempts to compensate for the impreciseness of the system clock by adding a second correction factor to the time that was calculated above in the state 412. In this embodiment, if the size of the second data packet is less than or equal to 500 bytes, the client computer 112 assigns the second correction factor to be equal to 60 milliseconds. Alternatively, if the size of the second data packet is greater than 500 bytes, the client computer 112 assigns the second correction factor equal to be equal to 40 milliseconds.

The cited passage of *Patel*, when taken in combination with *Loguinov* and *Burman* does not disclose the transmission of “a second object having a size less than a minimum transmission unit” or preventing fragmentation of the second object as claimed. Instead, the combination of references discloses the selection of a correction factor in its calculation of current bandwidth based upon packet size. No restriction as to the size of a transmitted packet is made. Appellants therefore respectfully submit that the rejection of Claim 14 under 35 U.S.C. § 103 is not well founded and should be reversed.

C. Dependent Claim 15

The rejection of exemplary dependent Claim 15 under 35 U.S.C. § 103 in view of *Beck*, *Loguinov*, *Burman* and *Patel* should also be reversed because the cited combination of references does not disclose or render obvious:

... invoking the snippet multiple times to obtain multiple estimates of the bandwidth and selecting the highest bandwidth estimate.

In the rejection set forth at page 9 of the Office Action, the Examiner cites lines 10-13 of *Patel*'s Abstract, col. 9, lines 60-61 of *Patel* and Figures 5-6 of *Loguinov* as disclosing the features of Claim 15. Taking the citations to *Patel* first, *Patel*'s Abstract discloses, “The transmission bandwidth detector uses identified back-to-back data packets to determine the transmission bandwidth between the server computer and the client computer.” The additional citation to col. 9, lines 60-61 adds nothing to this, but merely states, “FIG. 4 is a flowchart

illustrating a method for estimating the available bandwidth” Neither citation to *Patel* (or the reference generally) when taken in combination with the other cited references discloses or renders obvious “invoking the snippet multiple times to obtain multiple estimates of the bandwidth and selecting the highest bandwidth estimate,” as claimed.

Similarly, Figures 5-6 of *Loguinov* respectively disclose “a particular mechanism of estimating the bandwidth of the packets of the burst” (*Loguinov*, paragraph [0017]) and “a particular mechanism of handling the packet compression event” (*Loguinov*, paragraph [0018]), but fail to disclose “invoking the snippet multiple times to obtain multiple estimates of the bandwidth and selecting the highest bandwidth estimate,” as claimed. Thus, the combination of *Beck*, *Loguinov*, *Burman* and *Patel* does not disclose or render obvious each feature of Claim 15. Consequently, Appellants respectfully submit that the rejection of Claim 15 under 35 U.S.C. § 103 is not well founded and should be reversed.

III. Conclusion

The foregoing remarks demonstrate that the combination of cited references does not teach or suggest each feature of each pending claim as required to support a rejection under 35 U.S.C. § 103. Appellants therefore respectfully request the Board to reverse the rejection of each pending claim.

Please charge any fee necessary to further the prosecution of this application to **IBM Corporation Deposit Account No. 09-0447.**

Respectfully submitted,



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CLAIMS APPENDIX

1. – 9. (canceled)

10. A method for providing a service for estimating the obtainable bandwidth of a client's network connection, said method comprising:

a service provider receiving, from a server, a request for bandwidth estimation of a bandwidth of a connection between the server and the client;

the service provider responding to the request for bandwidth estimation by providing the client with a snippet that is an executable configured to request the server to serve first and second objects, in a chronologically sequential manner, to the client via the connection;

the service provider receiving, from the snippet at the client, information indicative of time elapsed between delivery of the first and second objects; and

estimating the bandwidth of the connection based in part on the elapsed time.

11. The method of claim 10, further comprising, maintaining response time data for the server and alerting the server based the server response time for a selected client and the estimated bandwidth associated with the selected client.

12. The method of claim 10, wherein the snippet identifies the first and second objects with URLs that are unique on the network connecting the client and the server.

13. The method of claim 12, wherein the server responds to the requests for the first and second objects by transmitting the first and second objects to the client from a content distribution network server that is architecturally proximal to an ISP server to which the client is connected.

14. The method of claim 13, where the second object has a size less than or equal to a minimum transmission unit associated with the network, wherein the second object is prevented from fragmentation.

15. The method of claim 14, further comprising invoking the snippet multiple times to obtain multiple estimates of the bandwidth and selecting the highest bandwidth estimate.

16. The method of claim 10, wherein the snippet includes:
instructions for creating first and second image objects;
instructions for generating a unique identifier (uniqueID); and
instructions for associating the first and second image objects with the first and second objects on the server using URLs containing the uniqueID.

17. – 20. (canceled)

EVIDENCE APPENDIX

none

RELATED PROCEEDINGS APPENDIX

none